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ABSTRACT

The accessibility of higher education to women and minorities was studied, with a focus on the University of California, Berkeley. Information was also obtained on the University of California system, the California State University system, and the community college system. In order to provide comparative information for Quebec, Canada, access of women to the Universite Laval was also assessed. Research questions included: Which minority groups have gained the most from higher education? Have women belonging to minority ethnic groups made the same gains as their male counterparts? Have white women made higher gains than white men? Have women of other minority ethnic groups made higher gains than minority ethnic men? To which socioeconomic strata do minority ethnic groups belong? Additional information on the access of women and minorities to higher education included: the types of institutions attended, the levels of study being pursued, and degrees conferred. The following ethnic groups were considered: American Indian, Asian, Filipino, Black, Hispanic, and White. Institutional factors that appear to restrict access to higher education for women and minority ethnic groups are identified. (SW)

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OCTOBER 1984

ACCESS OF WOMEN AND MINORITIES TO HIGHER EDUCATION: CHANGES IN TASTE AND COLOUR WITHOUT CHEMICAL CHANGES: PART. 1

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Presented at the Conference Co-Sponsored by Division J., Postsecondary Education, American Educational Research Association and Association for the Study of Higher Education,
San Francisco, October 28, 1984

Note: Quotation by permission only

To women
and minority ethnic groups

To the many people at
Berkeley, who assisted me
with my analysis and
contributed to my reflection

INTRODUCTION

In 1984, the problem of the access of minority groups to higher education should be addressed from new perspectives. Gone is the honeymoon with the human capital theories developped in the Sixties to justify the investment increase in higher education (Anisef, 1982). Gone also, is the honeymoon with the liberal ideology that saw education as a great equalizer of social inequalities.

Governments nowadays are chiefly preoccupied with the fight against inflation. Investments in education are examined first in that context, as they are affected by the increase in the national debt. People, especially the young, hold the fight against unemployment as their major concern. The young, namely those who belong to minority groups which, traditionaley, did not have access to higher education, have lost faith in the higher educational system as a means to attain a prestigious and challenging job and occupational mobility.

In this new situation, grants for higher education become smaller and governments request from teaching institutions to express a more thorough justification of their demands and to achieve greater productivity. Moreover, demographers foresee a decline in the 18-24 year-old traditional clientele during the next decade. This predicted decline makes even more precarious the situation of some teaching institutions which are already vulnerable.

At the same time however, we can see the coming of another phenomenon, of a new ideology, some will say of a myth, that of the technological revolution. Do these discourses and new

practices constitute signs of a new post-industrial era, of deep transformations of our economic structure and drastic ideological changes? Are not these discourses and new practices rather the result of concurrent interests of various groups or the result of a conflict between some status groups?

These interests are not necessarily identical for all groups involved, but they can find common expression on a unique objective, such as the importance given to the new technology. This revolution, so we hear, should get the economy out of its inertia, bring about the development of highly qualified manpower in certain fields, namely in engineering and computer sciences. This assertion agrees with the interest of some groups in the business world and with those of politicians who want to believe or make believe in this new panacea. This assertion also represents the interests of new, highly educated young elites.

At the level of the educational system, this could be expressed as follows:

> "Still another aspect ot this enthusiasm is a general feeling that any new technology, such as computers, offers a quick and effective solution to the many problems currently confronting the nation's educational system, such as declining achievement, incompetent teachers, and lower standards. Computers promise a lot for education."
>
> (Rumberger, 1984, p.2)

However, when we examine the numerous wastes of that type of work market organization, for instance the large number of jobs lost in the office and in some professions, could we not state the hypothesis that

this situation results from the struggle between occupational groups to obtain a new distribution of political and economical rewards? In the field of education, will not this new ideology based on technological change serve as a justification to screen the "better" and reject the "weak", for the sake of economic urgency and world balance of power?

How then, in that context, should we address the issue of access of women and minority groups to higher education? We just underlined the vote of non-confidence given to higher education by certain groups, but What are the facts?

During the last ten years, we have noticed in the United States and in Canada:

- a declining job market and lower economic rate of return on a college education (Anisef, 1982; Baldridge, Kemerer, Green, 1982)
- the importance of education credential in the labor market. The value of the baccalaureate has decreased. But this has been field specific rather generalized.

(Baldridge et al., 1982)

However, recent researches revealed that:

- the increase in the level of education provides better insurance against unemployment

(Anisef, 1982, Maisonneuve, 1984)

After a spectacular increase in enrollments in higher education in the 1950's and 1960's and a lower progression in the 1970's (Baldridge et al., 1982, p.4); Symons, Page, 1984, p. 25), several scenarios anticipate a decline in FTE

enrollments over the next 15 years. Other scenarios foresee a slight increase over the same period (Baldridge et al., 1982, p.5). Analysts agree however, that the "enrollment crisis" of the 1980's will have differential impacts on institutions:

> "The least vulnerable institutions seem to be at the opposite poles of the prestige ladder: the research universities and the selective liberal arts colleges at one end and the public two-years institutions at the other end."
>
> (Baldridge et al., 1982, p.13)

THEORETICAL BASIS

These facts having been stated, the issue of the accessibility of women and minority groups to higher education must be addressed that more urgently. We shall now explain our theories to better define this problem. We agree with the conflict theory according to which Schools are seen as great Sorters rather that great Equalizers. In other words, the education system tends to reproduce and to legitimate the existing stratification system in society. It is not done without struggle, however. The higher educational system is the scene of a continuous struggle for societal rewards - wealth, power and prestige . This struggle is being affected mainly by cultural selection, the old and new elites attempting to control the work organization by means of educational credentials. It is in this context that must be observed the increase in the admission conditions and norms to higher educational institutions (Lavin, Alba, Silberstein, 1981). These policies serve as "gatekeepers" for some individuals and social groups.

The whole debate on school inequality is not a new one. It has been the focus of political conflicts during this century, first in respect of social class, and more recently, of sex and ethnic groups (Halsey, 1980; Anisef, Okihiro, 1982). What is possibly new, is the fact that even though higher education constitutes an insurance policy that is not as sure as it was ten years ago, it is nowadays more essential than ever to obtain. Moreover, a greater number of groups (such as women and minority ethnic groups) struggle to obtain that insurance policy.

According to our choice of theories, university knowledge is seen as an economic investment for individuals and social groups, and even more as a source of power and prestige. The value of this knowledge comes, to a lesser degree, from the acquisition of technical or cognitive skills, and to a greater degree, from the acquisition of, or socialization with, the culture of a given professional group (Collins, 1979; Bourdieu, Passeron, 1970).

The value of university knowledge is not homogeneous. In other words, "universities cannot be treated as unidimensional entities or as a single "black box"" (Anisef, 1982, p.16). There is a vertical stratification between universities, and also between university departments (Baudelot, Benoliel, Cukrowicz, Establet, 1981; Astin, 1982; Daignault, 1984).

Besides, the types of knowledge that, at a certain time, occupy the top of the social pyramid are not guaranteed to keep this position at a subsequent time.

The values associated with university knowledge assuredly are in a positive correlation with openings on the labour market and the concurrent type of economy. However, they are also the result of the struggles between various elites to maintain or obtain control over different types of knowledge (Collins, 1979).

METHODOLOGICAL AND CONCEPTUAL FACTS

Stating the issue of the accessibility to higher education in these terms implies that the quantitative increase in enrollment of women and minority groups in higher education is not an adequate indicator. Quantitative accessibility is only one element of democratization:

> "It would be possible to fill universities and not alter in any way the power relationships still prevailing in the world of learning" (our translation)
>
> (Pelletier, 1979, p.5)

We must therefore, add to the question How many, the questions: Where (type of universities, department), At what level, At what status of studies do women and minority groups find themselves in the university system?

This issue also implies a redefining of the concept of accessibility so as to incorporate to access (admission) the equality of academic performance, that is by taking an equality of results perspective. It seems that this point of view has not been sufficiently taken into account in the establishment of current educational policies in Canada and in the United States:

or studies as well. The definition of quality or excellence combined to equity is not agreed on unanimously:

> "A belief widely held among contemporary educators is that the twin goals of excellence and equity in American education are inherently imcompatible, and that the price of expanding opportunities is necessarily a reduction in quality."
>
> (Astin, 1982*, p.1)

In Astin's view, the concept of excellence means "emphasized educational impact or value added on student (p. 4):

> "... An "excellent" school or college is thus one that produces substantial improvements in competency or achievement from the beginning to the end of the program."
>
> (Astin, 1982*, p.15)

As the understanding of excellence cannot be measured with available data, we are using a more traditional way of measuring it based on institutions. For example, the Carnegie Commission on Higher Education (1973) presents a hierarchy of universities based on such factors as the amount of federal research money received and the total number of doctorates awarded. (Astin 1982, p.132). This indicator helps to establish a hierarchy among universities, to identify "flagship universities" according to Astin's words (1982).

The hierarchy of departments is based on the economic value of the certificate, and also on its cultural value. This last factor brings us some difficulties of methodology.

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We are limited by the fact that the theories of conflict have not been applied in the type of analysis we are dealing with. Some authors lead us to suggest, as we said earlier, that education has been used as a means of cultural selection and that the acquisition of a "technical" scientific knowledge is not the only way to reach a higher social status, another means being the acquisition of the new group's cultural skills. For example, Collins showed that, until recently in the United States, engineers had not succeeded in attaining the same level of power and prestige as doctors and lawyers.(Collins, 1979)

The difficulty however, in using this concept of "cultural market" lies in the fact that the authors did not identify which of the cultural skills belong to each professional group, and which of these skills make up a cultural "capital".

In Québec, in our study conducted at the Université Laval, we found a link between some programs restricted by quotas, programs of professional type and the types of training that are economically profitable. Programs at the top of the list are the followings: dentistry, medicine, law, architecture, science and engineering, administration (Daignault, 1984).

A longitudinal analysis of admission policies would tell us if in the coming years, engineers and professionals in computer sciences and administration will get to the top of the profitable cultural market.

The present measurement which we find the most appropriate for testing these data consists in developing a typology that would list on the one side the departments that have proved to be culturally and economically profitable, i.e. medicine and law an on the other side, the departments where there has been an increase in applications: engineering, computer sciences and business.

Finally, one last concept is worth analyzing, that of minority groups. This notion can be defined in various ways:

> "Minority could be defined as a racial group different from the numerically dominant one. Or "minority" could mean a racial group different from the politically dominant group or "minority" could mean a cultural group different from the one that is currently dominant"
>
> (Dworkin, Dworkin, 1982, p.11)

Until recently, women as a group could be considered a numerical minority relatively to the number of men in higher education. Women are no longer a quantitative minority within university undergraduates. We see however, that it is still the case in graduate and post-graduate studies. Besides, they can be considered a political and cultural minority.

Ethnic groups such as Chicanos or Hispanics, Filipinos, Blacks, American Indians and Alaskan Natives are numerical minorities in relation to the number of Whites in higher education. They are numerical minorities in that sense that these groups are not represented in the higher educational system according to their relative number in the Californian population, or to their relative number among those who have completed high school. These groups can also be studied as cultural and political minorities. Asian Pacific Islanders

are sometimes considered a minority. According to our definitions, they would not be one at the undergraduate level.

Another facet should be added to the definition of Dworkin and Dworkin: that of economic minority. According to this new facet, economically disadvantaged Asian or White men also constitute a minority.

Generally, our definition of the concept of minority means access which is not equal if we compare it to that of dominant groups, to the cultural, political and economical resources of a society, that is the societal rewards which are wealth, power and prestige. Access to higher education is still nowadays one of the best way to obtain these resources.

The most appropriate measure to define the concept of minorities in the university educational system would consist in a three-prong variable which would take into account the social origin, the gender and the ethnic group of the students. In fact, numerous researches have proved that the recent democratization of the higher educational system has been affected to the advantage of groups already attending it, offering better chances of access to sons of upper and middle class origin (Baudelot, Benoliel, Cukrowicz, Establet 1981; Astin 1982, Dandurand, Fournier, Hétu 1979; Clark, Zigmond 1981; Bisseret 1972, Pike 1970).

Pike concluded that for Canada:

> "There was no indication that the university expansion (of the 1960's) has been accompanied by more than a small increase in the participation rates of students of lower class origins relative to the participation of students from the more privileged classes... In other western countries... the picture would appear to be generally similar: for example, in Britain, France and the United States... the state universities and the prestigious private institutions continue to draw

> from predominantly middle class populations".
>
> (Pike 1981 quoted by Stager 1984, p.35-36).

It appears that the democratization of the higher educational system has been done also to the advantage of those ethnic groups whose meritocratic type of culture is the same or is close to that of the White. For example, an educationally oriented home environment could be the reason behind the superior academic achievement of Asians who - like the other minority groups from non-English speaking countries - have to learn English language first before they can adequately function in the classroom (Vernon, 1982). Finally, other studies demonstrate that social origin seems more determining than sex for admission and choice of departments at the university (Anisef, Okihiro 1982, Dandurand, Fournier, Hétu 1979).

However, gains on the labour marketplace, even for women enrolled in flagship universities, are apparently not equivalent to those for men (Anisef 1982).

In order to examine the accessibility to higher education for women and minority groups, we must add the following questions to those stated earlier:

- which minority groups have gained the most from higher education?

- have women belonging to minority ethnic groups made the same gains as their male counterparts?

- have white women made higher gains than white men?

- have women of other minority ethnic groups made higher gains than minority etnnic men?

- to which socio-economic strata do minority ethnic groups belong?

- to which socio-economic or sexual substrata inside their ethnic group do they belong?

Available data do not enable us to give a satisfying answer to the last two questions as our analysis was based first on the data banks of the registry office and some institutional researches.

Our theoretical and conceptual basis being stated, we shall proceed now to a summary description of our methodology.

METHODS / APPROACH USED

For the purpose of this paper, our research has focused mainly on California and the University of California system with a particular emphasis on Berkeley. In order to provide some comparative elements with the province of Quebec, we have studied the admission policies at the Université Laval. Considering the different infrastructures which prevail in the higher educational systems of the two countries and of the State of California and the province of Quebec, considering also the source of our data, the information presented in this paper should be viewed as suggestive of changing trends rather than as confirming them. Therefore, this research is rather of an exploratory type.

The study of case of the California higher educational public system seemed pertinent for a number of reasons: the ethnic diversity of that State, a well developed higher educational public system which is based on legislation allowing for various institutional levels and responsibilities:

> "According to the Master Plan, the university was to remain "the primary state - supported academic agency for research" and was to have "the sole authority in public higher education to award the doctoral degree in all fields of learning."... In addition, the university was given "exclusive jurisdiction in public higher education over instruction in the profession of law, and over graduate instruction in the professions of medicine, dentistry, veterinary medicine and architecture.
>
> ... The Master Plan legislation assigned to the state colleges* the primary function of providing "instruction for undergraduate students and graduate students, through the master's degree, in the liberal arts and sciences, in applied fields and in the professions, including the teaching profession."
>
> (Smelser, Almond, 1974, p.28)
>
> The Master Plan gives also a definition of functions for the junior colleges **: (1) standard collegiate courses for transfer to higher institutions; (2) vocational and technical fields leading to employment; (3) and general or liberal arts courses."
>
> (Smelser, Almond, 1974, p.28)

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* The "state colleges" became the "state universities" in 1972.

** The "junior colleges" later became the "community colleges".

The interest of the study of case at the University of California, and especially at UC Berkeley, lies in its public status and its international reputation. Moreover, UC Berkeley was in the Sixties at the heart of the struggles and confrontations of minorities for access to higher education. Besides, we have been able to observe at Berkeley, a political determination for affirmative action as well as several institutional practices in favor of women and ethnic groups.

Two further motives were at the origin of our interest for California. This State is closely associated with the technological revolution and has already developed infra-structures for appropriate university education and research, and at the industrial level as well. Besides, the State of California was not exempted from the economic crisis which has struck the world of education. Proposition thirteen is an indicator of that situation.

For all these reasons, the University of California, and especially Berkeley, was in our point of view, the ideal setup for the study of sex and minorities admissions as a public policy issue.

Parallel to this California analysis, a group of Québec researchers, to which I belong, were carrying on an analysis of the patterns of university enrollments in Quebec, and were trying to find an explanation to the low rate of enrollment of some groups, such as women, adults and young of the lower socio-economic strata. For the purpose of this paper, we will limit our analysis to the issue of access of women to Université Laval.

The Québec postsecondary educational system is made up of private and public institutions. The public CEGEP (Collège d'enseignement général et professionnel) can be said to have certain similarities to "community colleges". At that level of education, public institutions outnumber private institutions. Contrary to the American education system, the students who wish to go on to university cannot enroll directly from high school to "state universities". They have to spend two years at a CEGEP.

After the CEGEP, follows the system of higher educational institutions composed of a public system, the Université du Québec with its various branches, and private institutions, such as the Université Laval. The status of the Université du Québec is similar to that of Californian "state universities". It is a new university: its first components were established in 1970.

The Université Laval is a private institution with a public character as its operating budget comes mainly from public funds. It is the oldest francophone university in Quebéc. Like the Université of Montreal and McGill University, it offers instruction for undergraduate and graduate students through to the master's and the doctorate degrees in the professions of law, medicine, etc, in applied fields such as engineering and in the professions, including the teaching profession.

The Université Laval has not experienced any open conflict on the issue of the accessibility of minority ethnic groups. The debates in the province of Québec mostly focus on the linguistic aspect (francophones vs anglophones), which means that the refined analysis of the accessibility of minority

ethnic groups to higher education is somewhat left in abeyance. Analysis of accessibility from sex origin are more numerous even though, until recently, the linguistic issue was foremost in the preoccupations of several government agencies and departments.

In this paper, statistics provided by the registry offices on admissions and registrations are analyzed. Furthermore, some studies of the Office of Institutional Research, of the Office of Student Research, of the Student Affirmative Action Advisory Committee of the University of California, Berkeley are used for demonstration. Such is also the case with studies of the California Postsecondary Education Commission on Equal Educational Opportunity, and with State and national statistics provided by the Digest of Education Statistics, 1980, 1982 (NCES) and The American Freshman: National Norms For Fall 1980, 1982 (Astin and al., UC, Los Angeles).

RESULTS

Several researches have demonstrated the dependence of access to higher education on structural factors which operate much earlier than university level (Laforce, Massot 1983). For example, it is well known that minorities have a high rate of dropouts in high school, or that a great number of the latter did not follow the curriculum required for university admission.

> "Educationally, low-income Black, Chicano, and American Indian students have an extremely high dropout rate from high school. (Nationally, for example, nearly 45 percent of Hispanic and 30 percent of Black students never finish high school, compared to 17 percent of White students.) They are less likely to complete college - preparatory courses in high school in order to be eligible for university admission. A large proportion of Asian students and a fourth of all Chicano students have limited English speaking and writing skills that restrict their success in academic courses."
>
> (California Postsecondary Education Commission 1982. p.8)

In spite of these limits, it seems to us pertinent to observe how, for their part, higher educational institutions and their admission and retention practices can act as gatekeepers for women and minority ethnic groups.

How many?

The analysis of admissions and registrations in post-secondary educational institutions for the 1974-1980 period shows an increase in the ratio of women and ethnic minorities in the educational system. In spite of some statistical nuances, the same trends apply for the United States, California, Canada and Québec.

Analysis from survey-polls held each October by the American Bureau of the Census indicate an increase of the ratio of female students enrolled in colleges in 1979 in comparison with 1974, and an increase, although a slight one, of the minority ratio for the same period:

> "The proportion of college students who were women rose from 45.2 per cent in 1974 to 51.8 per cent in 1979. The percentage of members of black and other races increased from 11.8 in 1974 to 12.5 5 years later."
>
> (Grand, Eiden, 1982, p. 93)

Comparison between the State of California and the whole of the United States, for the 1976-1980 period, shows a slightly greater increase in the ratio of women in post-secondary institutions in the United States, a decrease in the ratio of men in California, and an increase in the ratio of men in the United States:

> "Comparing men's and women's enrollments in California with national proportions, Display... shows that between Fall 1976 and Fall 1980, female enrollment increased 18.8 per cent in the State and 21.2 per cent nationally. In contrast the number of men enrolled in California institutions declined by 0.2 percent, while increasing nationally by 2.4 percent."
>
> (California Postsecondary Education Commission, 1982, p. 27-28)

In Canada, the analysis of Statistic Canada data indicates similar upward trends. The proportion of university women students rose from 44.1 percent in 1974-1975 to 49.7 percent in 1980-1981. In Québec, over the same period, the proportion of women rose from 43.3 percent to 50.3 percent (Statistic Canada, Cat. 81-204, 81-220)*.

Analysis from the Canadian census in the province of Ontario over the 1971-1976 period also shows an increase in the proportion of women and minorities in post-secondary education:

> "Females had greater gains in university attainment from 1971 to 1976 than males and thus closed the gap between the sexes.
> For both sexes, non-English mother-tongue groups increase their university attainment rates faster than the English mother-tongue group.
> The exception was the Native Indian group."
>
> (Anisef, Okihiro 1982, p. 90, p. 98)

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* Analysis of these percentages requires caution, since in several institutions, sex is not reported as a variable.

Without dwelling on the methodology behind the various data reviewed earlier or on the selected indicators, we can conclude that over a period covering approximately the last ten years, women and minorities have been better represented in post-secondary education.

Despite fairer representation of sexes and ethnic groups over recent years I would nevertheless like, in this paper, to advance the hypothesis that these changes were more superficial than profound. To sum up, I would say: "Accessibility of women and minorities in higher education: changes in taste and colour without chemical changes"; or more precisely, I shall try to answer the following questions: Where are women and minorities in higher education? At what level of studies are they represented? What is their status of studies? What are their achievements (degrees conferred)?

Where? (type of institutions)

We indicated earlier, by using the example of the Californian higher educational public system, the existence of a vertical stratification among post-secondary institutions. The admission standards of various types of institutions provide further illustration of the university hierarchy. At the undergraduate level, three types of requirements are part of the admission procedures of California freshman applicant, that is, of "a student who has graduated from high school but has not enrolled since then in a regular session in any college or university".* Those requirements are subject requirements, scholarly requirements and examination requirements.

* University of California, Information for Prospective Students, 1983-84, p. 15.

These various types of requirements are more stringent in their numbers and expectations at the University of California than at State Universities. For example,

> "California residents in the top 12.5% of their high school graduating class are eligible for admission in the University of California".
>
> (University of California, Discover..., p.7).

At State Universities:

> "Applicants who are graduates of a California high school or are legal residents must have an eligibility index which place them among upper one-third of California high school graduates."
>
> (Humbolt State University, 1982, 83, p. 30)

The University of California, Berkeley, is recognized as one of the American flagship* institutions (Astin, 1982, p. 132).

What are the facts?

Ethnic minority students are represented in greater number in the less prestigious institutions:

> "Students from all minority groups shown tend to be concentrated in two year public colleges."
>
> (American data based on Fall 1978)
> (Astin, 1982, p. 132)

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* Astin utilizes the typology of universities developed by the Carnegie Commission of Higher Education.

The University of California, Berkeley, finds itself among the flagship universities that reveal the greatest underrepresentation of Blacks, Hispanics and American Indians at the undergraduate level in comparison with all higher education students in the United States. The percentage of underrepresentation at Bekerley is higher for Hispanics and American Indians than for Blacks. These data were obtained from the 1973 Higher Education Information Survey conducted by the National Center for Education Statistics (NCES) (Astin, 1982, p. 133-138). Let us recall that, in California, people of Hispanic origin are more numerous than Black people.

Women (as a group) find themselves underrepresented among the clientele of the University of California:

> Table 1. "shows the college-going rates of men and women for the three public segments of higher education from 1977 to 1980. In most years, the University's rate for men has been higher than for women. The rates for women at the Community Colleges and the State University have usually been higher than for men."
>
> (California Postsecondary Education Commission, 1982 Information Digest, p. 21)

Table 2 confirms for 1980, the same trends observed by Astin for 1978.

> "... the Hispanics were least well represented among freshmen in comparison with high school graduates... The Community Colleges enrolled larger proportions of Black, Hispanic, and American Indian students as first - time freshmen than did the University and the State University, while the University enrolled a larger proportion of Asians, and the University and the State University enrolled a larger proportion of Filipinos than did the Community Colleges, again in comparaison with their representation in the 1979 high school graduating class."
>
> (California Postsecondary Education Commission, 1282 Information Digest, p. 21-22)

TABLE 1

PERCENTAGES OF MEN AND WOMEN HIGH SCHOOL GRADUATES ENROLLED AS FIRST-TIME FRESHMEN IN EACH PUBLIC SEGMENT OF CALIFORNIA HIGHER EDUCATION

(1977-1980)

Segment	Sex	1977	1978	1979	1980
University of California	M	5.4	5.7	5.8	6.0
	F	5.0	5.4	5.8	5.9
Calif. State University	M	7.6	7.7	7.8	8.7
	F	8.4	9.0	9.5	10.0
Community Colleges	M	43.2	41.1	41.1	43.1
	F	43.4	41.6	43.1	42.9
Total	M	56.2	54.5	54.7	57.8
	F	56.8	56.0	58.4	58.8

Source: California Postsecondary Education Commission, 1982 Information Digest display CGR-2, p. 24.

TABLE 2

PERCENT ETHNIC DISTRIBUTIONS OF 1979 GRADUATES OF PUBLIC CALIFORNIA HIGH SCHOOLS, AND 1980 FIRST-TIME FRESHMEN IN THE UNIVERSITY OF CALIFORNIA, THE CALIFORNIA STATE UNIVERSITY AND THE CALIFORNIA COMMUNITY, BY SEX

Groups*

Segment	Sex	Number	American Indian	Asian	Filipino	Black	Hispanic	White	Ethnic Data Missing
High School (1979)	M	127,683	0.7	4.7	0.9	9.0	15.0	69.7	2.6
	F	129,479	0.7	4.5	1.0	9.5	15.0	69.3	2.4
University of California	M	7,881	0.4	15.0	2.6	3.1	6.8	72.1	3.2
	F	8,255	0.4	13.5	2.5	5.0	6.0	72.6	3.3
California State University	M	10,848	1.2	8.2	2.0	6.7	11.8	70.1	26.0
	F	13,473	1.1	7.3	1.8	9.1	11.2	69.5	26.0
California Community Colleges	M	54,224	1.8	4.6	1.4	9.0	14.4	68.8	6.2
	F	58,163	1.6	3.7	1.4	9.5	14.3	69.5	5.7
Total UC, CSU, and CCC	M	72,953	1.5	6.2	1.7	8.0	13.2	69.4	8.8
	F	79,891	1.4	5.3	1.6	8.9	13.0	69.8	8.9
	T	152,844	1.5	5.7	1.6	8.5	13.1	69.6	8.9

* The sum of the percentages in each, exclusive of "Ethnic Data Missing", is 100. Thus, the first entry at the top of the table means that American Indian males comprised 0.7 percent of the male high school graduates in 1979. Similarly, the last entry at the bottom of the table means that whites comprised 69.6 percent of the combined group of first time freshmen in the three public segments of higher education in Fall 1980.

* Ethnic data for public high school graduates in 1979 were obtained from a special report prepared by the State Department of Education. Ethnic data were not available for graduates in 1980. Therefore, caution needs to be exercised in comparing the ethnic distributions of 1979 high school graduates and 1980 college and university freshmen.

Source: California Postsecondary Education Commission, 1982 Information Digest display CGR-3, p. 24.

Table 2 also enlightens us on the distribution of men and women among various ethnic groups, and shows a slightly greater representation of Black women, and a slightly lower representation of Asian women:

> "A slightly higher percentage of Black women graduated from high school than Black men in 1979, and this larger percentage of women among Black students was found to continue in to the college-going rates in each segment. In contrast, the percent of Asian women in the distribution of high school graduates was slightly less than that for Asian men and the percentage enrolled as freshmen in each segment was less than that for men as well. Hispanic women, while equally represented in the high school graduating class tended to enroll in smaller proportions in the University and the State University as freshmen than did the men."
>
> (California Postsecondary Education Commission, 1982 Information Digest, p. 22).

Table 2 also reveals a greater similarity between sexes of the same ethnic group than between sexes of different ethnic groups. For example, Asian men and women are much more strongly represented at the University of California than Hispanic or Black men and women.

Table 3 shows the students' ethnic identity and their ethnic identity by sex at the University of California, Berkeley as of the fall of 1980. Apart from the Asian population, the representation of ethnic minorities such as American Indians, Blacks, Chicanos, etc. is very low among students. Black women only are more numerous (54% w undergraduates) than their male counterparts. In most other ethnic groups, women are less represented than men of their ethnic group. For example, among a large minority in California (Chicanos), only 38% of women are enrolled at the University of California, Berkeley; among the ethnic majority (White), 44% of women are enrolled at the same

TABLE 3

ETHNIC IDENTITY OF STUDENTS BY SEX

ETHNIC IDENTITY	UNDERGRADUATES				GRADUATES			
	Total	Men	Women	%W	Total	Men	Women	%W
American Indian	91 0.4%	46 0.4%	45 0.5%	49%	53 0.6%	31 0.5%	22 0.7%	42%
Black / Afro American	758 4.0%	346 3.0%	412 4.0%	54%	295 3.0%	141 2.0%	154 5.0%	52%
Chicano / Mexican American	498 2.0%	311 3.0%	187 2.0%	38%	168 2.0%	96 2.0%	72 2.0%	43%
Asian*	3910 18.0%	2192 18.0%	1718 18.0%	44%	590 6.0%	381 6.0%	209 6.0%	35%
East Indian / Pakistani	103 0.5%	63 0.5%	40 0.4%	39%	26 0.3%	21 0.4%	5 0.2%	19%
Latino / Other Spanish	325 2.0%	190 2.0%	135 1.0%	42%	135 1.0%	81 1.0%	54 2.0%	40%
Pilipino / Filipino	354 2.0%	190 2.0%	164 2.0%	46%	29 0.3%	13 0.2%	16 0.5%	56%
White / Caucasian	13948 64.0%	7793 64.0%	6155 65.0%	44%	6275 68.%	3836 65.0%	2439 73.0%	39%
Other	519 2.0%	315 3.0%	204 2.0%	39%	122 1.0%	91 2.0%	31 1.0%	25%
Decline to State	389 2.0%	233 2.0%	156 2.0%	40%	146 2.0%	93 2.0%	53 2.0%	36%
Foreign Students	517 2.0%	348 3.0%	169 2.0%	33%	1329 14.0%	1094 18.0%	235 7.0%	18%
No data	215 1.0%	113 1.0%	102 1.0%	47%	88 1.0%	58 1.0%	30 1.0%	34%
TOTAL	21627	12140	9487	44%	9256	5936	3320	36%

Source: Adapted from Campus Statistics Fall Quarter 1980 and Year 1979-1980, University of California, Berkeley, Office of Institutional Research, Table 12, p. 28.

* Note: Asians = Chinese / Chinese American, Japanese / Japanese American, Korean, Polynesian, Thai / Other Asian.

institution. In terms of rates of enrollment, however, excluding foreign students, the distribution of men and women of the same ethnic group is fairly similar.

At Université Laval, in 1980, the ratio of women students was 48% at the undergraduate level.

What is their status of studies?

The status of studies constitutes in itself an indicator of the accessibility to higher education, and indirectly, a measure of the type of institution. In fact, we can observe a reverse correlation between the type of institution and the number of students enrolled part time in California: at the California Community Colleges, a greater proportion of students (75%) were enrolled part time, in 1980; the opposite prevails at the University of California (8%) (California Post-secondary Education Commission, 1982 Information Digest, p. 44-45).

We noted earlier that women and ethnic minorities are proportionally more concentrated than other groups in Community Colleges. Moreover, it is known that ethnic minorities (Dearman, Plisko, 1980, in Astin, 1982, p. 37) and women are usually enrolled in greater number in part-time studies than in full-time studies. It is known also that there is a correlation between the age of students and their study status, the older being enrolled part time in greater proportion.

Californian data from 1977 to 1981 indicate that the average age of students is lower at the University of California (23: 1980) than at Community Colleges (30.3: 1980). Besides, the age difference is very small between the sexes, at the University of California (F: 22.8; M: 23.2), compared to that of the Community Colleges (F: 31.7; M: 28.6) (California... Commission, 1982 Information Digest, p. 45).

It is known also that part-time enrollment has increased more than full-time enrollment in the United States from 1974 to 1979 (25.8 PT, 10.3% FT) (NCES, Digest 1982, p. 93). The same trend can be observed in California. What about the situation at the University of California, Berkeley?

Even though the number and percent of part-time students increased from 1975 to 1980 at UC, Berkeley, the great majority of students (91%) were enrolled full time in 1980. From 1975 to 1980, the number of part-time students increased mainly at the undergraduate level, for men and women students. Women are slightly more represented among part-time students (44% w: 1980) than among full-time students (41% w: 1980), without, however, being the majority in the former group (see Table 4).

At the Université Laval a greater proportion of students are enrolled part-time (28%: 1980). It should be noted that this situation is typical not only at the Université Laval, but also at the other universities in the province of Québec, in comparison with the other Canadian provinces (Statistic Canada, cat. 81-204 and 81-220). Moreover,

> "in Québec, university part-time studies are disproportionately the lot of a linguistic group, namely the Francophones. Part-time enrollment represents a quarter of all admission with the Anglophones, a third with the Allophones, but half the total enrollment with the Francophones."
>
> (A. Lespérance, quoted by Bertrand, 1984, p. 3) (The translation is ours).

Table 5 shows an increase in the number and percentage of part-time and full-time students from 1975 to 1980, at the Université Laval. This increase is greater however, for part-time students, at the undergraduate level and for both sexes. The increase in the number of women is greater between 1975 and 1980. However, women are more represented among part-time students (56% w: 1980) than among full-time students (42% w: 1980) (See Table 5).

TABLE 4

PROPORTION OF STUDENTS BY STATUS OF STUDIES
BY LEVEL OF STUDIES AND SEX
UNIVERSITY OF CALIFORNIA , BERKELEY
(Fall 1975, 1980)

	FULL TIME %	PART TIME %	TOTAL
1975	28,019 92%	2,290 8%	30,309 100%
1980	28,196 91%	2,687 7%	30,883 100%
Δ 1975-80	1%	17%	

	Full Time		Part Time	
	UNDERGRADUATES %	GRADUATES %	UNDERGRADUATES %	GRADUATES %
1975	19071 68%	8948 32%	1725 75%	565 25%
1980	19412 69%	8784 31%	2215 82%	472 18%
Δ 75-80	2%	-2%	28%	-16%

	m e n		w o m e	
	FULL TIME	PART TIME	FULL TIME	PART TIME
1975	17391 93%	1309 7%	10628 92%	981 8%
1980	16562 92%	1514 8%	11634 91%	1173 9%
Δ 75-80	-5%	16%	9%	20%

(Continued... TABLE 4)

BERKELEY

	FULL TIME (% women)	PART TIME (% women)
1975	38%	43%
1980	41%	44%

Source: Adapted from Campus Statistics Fall Quarter 1975 and Year 1974-1975, University of California, Berkeley, Office of Institutional Research, Table 3, p. 3 - Highlights, p. 1.

Adapted from Campus Statistics Fall Quarter 1980 and Year 1979-1980, University of California, Berkeley, Office of Institutional Research, Table 3, p. 3 - Highlights, p. 1.

TABLE 5

PROPORTION OF STUDENTS BY STATUS OF STUDIES
BY LEVEL OF STUDIES AND SEX
UNIVERSITÉ LAVAL
(Fall 1975, 1980)

	FULL TIME %	PART TIME %	TOTAL
1975	14,462 75%	4,805 25%	19,267 100%
1980	17,847 72%	7,020 28%	24,867 100%
Δ 1975-80	23%	46%	

	Full Time		Part Time	
	UNDERGRADUATES %	GRADUATES %	UNDERGRADUATES %	GRADUATES %
1975	12852 89%	1610 11%	3405 71%	1400 29%
1980	15529 87%	2318 13%	5177 74%	1843 26%
Δ 75-80	21%	44%	52%	32%

	men		women	
	FULL TIME	PART TIME	FULL TIME	PART TIME
1975	9183 78%	2526 22%	5279 70%	2279 30%
1980	10307 77%	3105 23%	7540 66%	3915 34%
Δ 75-80	12%	23%	43%	72%

(Continued... TABLE 5)

LAVAL

	FULL TIME (% women)	PART TIME (% women)
1975	37%	47%
1980	42%	56%

Source: Adapted from Université Laval, Bureau du Registraire, Automne 1975, automne 1980.

At what level?

Table 3 shows that women see a lowering of their representation at Uc Berkeley, from the undergraduate level (44%: 1980) to the graduate level (36%: 1980). This trend is seen with women of every ethnic group, except for Filipinas and Chicanas. It should be noticed however, that only 16 Filipinas and 72 Chicanas are enrolled in graduate studies in the fall of 1980.

The proportion of foreign students, especially of men, increases from the undergraduate level to the graduate level in 1980 (2% undergraduates, 14% graduates). By adding to this group, the proportion of White men students at the graduate level (64%), we can observe a decrease in the ethnic minority representation at the graduate level, except for Chicanos and American Indians. It should be noted however, that these latter groups constitute only less than 1 percent of the graduate clientele for the American Indians, and 2 percent for the Chicanos.

The proportion of White women is even greater at the graduate level (73%) than at the undergraduate level (65%) in 1980. The gap is larger between these two levels for White females than for White males. Asians of both sexes, contrary to Whites, lose ground from the undergraduate level to the graduate level even though they constitute at the graduate level, as was the case at the undergraduate level, the best represented minority.

Except for Asians, ethnic minorities and women more than men, are underrepresented in 1980. Did this distribution improve from 1975 to 1980? For the Blacks, Chicanos, East Indians and Asians, representation seems to have decreased at the graduate* level in 1980. (See Table 6). The situation somewhat improved for American Indians, Latinos and Filipinos.

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* Analysis of the undergraduate level in 1975 was impossible: too many cases lacked ethnic identification.

TABLE 6

PROPORTION OF STUDENTS BY ETHNIC IDENTITY AND RATE OF INCREASE, UNIVERSITY OF CALIFORNIA, BERKELEY (FALL 1975, 1980)

ETHNIC IDENTITY	GRADUATE STUDENTS		
	80	75	Δ 75-80
American Indian	53	44	20%
Black / Afro-american	295	398	-26%
Chicano / Mexican American	168	215	-22%
Asian*	590	624	- 5%
East Indian / Pakistani	26	29	-10%
Latino / Other Spanish	135	106	27%
Pilipino / Filipino	29	24	21%
White / Caucasian	6275	6314	- 2%
Other	122	184	-34%
Decline to State	146	332	-56%
Foreign Students	1329	1243	7%
No data	88		

Source: Adapted from Campus Statistics Fall Quarter 1980 and Year 1974-1975, University of California, Berkeley, Office of Institutional Research, Table 11, p. 30.

Adapted from Campus Statistics Fall Quarter 1980 and Year 1979-1980, University of California, Berkeley, Office of Institutional Research, Table 11, p. 27.

* Note: Asian = Chinese / Chinese American, Japanese / Japanese American, Korean, Polynesian, Thai / Other Asian.

Their progression is still too slow however, to offset their low representation in total population. The data on the low progression of minority ethnic groups are confirmed by the analyses of the Student Affirmative Action Advisory Committee:

> "- There has been a downward movement in the percentage of enrolled ethnic minority graduate students. The percentage of enrolled ethnic minority students on the campus declined from 16% in 1977 to 11.3% in 1981.
>
> - While there has been some variation over time, there has not been a substantial variation in the percentage of total graduate minority enrollment at the Berkeley Campus during the 1978-81 period. (In 1977 there was a substantially larger percentage of enrolled minority students than in the next three years)."
>
> (Student Affirmative Action Advisory Committee, 1981-82, p. 13-14)

This committee also confirms our data about greater gains for women over the same period of time. They account for 36% of the graduate clientele at Berkeley, in 1980, compared to 31%, in 1975. At the Université Laval, at the same level, their progression is even greater (26%: 1975 - 37%: 1980). At the undergraduate level, the proportion increased from 42 percent to 48 percent at the Université Laval, and from 42 percent to 44 percent at UC Berkeley. Let us recall however, that this progression was done mainly at the benefit of White women, at UC, Berkeley.

Where? (in what field?)

From 1966 to 1982, we observed changes in the popularity of university disciplines. Astin concludes from the 1982 National American Freshman Survey:

> "The popularity of careers in business, engineering and computer programming reached all-time highs in the 1982 survey."
>
> (Astin, 1983, p. 2)

Are these changes indicating a shift in economically and culturally profitable markets? Are they indicating a shift of profitability from Medicine and Law to Applied Sciences and Business? If so, will minority ethnic groups and women take part in these changes or will they tag behind? It is known in fact, that the opening of important higher educational institutions to women and minorities doesn't have a long tradition in North America and the United-States:

> "... as late as 1948 one-third of approved medical schools in the nation officially denied black applicants admission solely on the basis of race."
>
> (Sindler, 1978, p. 172)

> "Not very long ago, only two educational institutions, both expressly created for blacks and financed with federal funds, were the primary suppliers of medical training for blacks in America. As recently as 1961-62, of 771 black medical students in the country, only 171 of them (22 percent) were enrolled in predominantly white medical schools; the remaining 78 percent were at Howard University in Washington, D.C., or Meharry Medical College in Nashville, Tennessee. And it was not until 1968 that the American Medical Association banned racial bars to membership in its state and local affiliates."
>
> (Sindler, 1978, p. 44)

> "We know that many colleges admit fixed percentages of men and women each year. At Cornell University, for example, the ratio of men to women remains 3 to I from year to year; at Harvard/Radcliffe it is 4 to 1. The University of North Carolina at Chapel Hill's fall 1969 "Profile of the Freshman Class" states, "admission of women on the freshman level will be restricted to those who are especially well qualified". They admitted 3,231 men or about half of the male appliquants, and 747 women, about one-fourth of the female applicants."
>
> (United States Congress, 1970, p. 643 in Roby 1973, p. 43)

What about it? It shoudl be noted first that one can hardly compare the category "Health and Medical Sciences" at the University of California, Berkeley to that of the Université Laval since Berkeley does not offer Dentistry, Medicine, Pharmacy and Nursing as Laval does.* Because of these limitations, Law will serve as our parameter in this analysis.

Another classification difficulty occurred, this time in Computer Science. We found the following categories in some Tables: Electrical Engineering and Computer Science together in one instance, and Computer Science as part of Sciences or Physical Sciences in another. The latter case concerned only undergraduate studies, however. Our research being of an exploratory type, and our hypothesis at the refining stage rather than at that of systematic verification, these categorization difficulties are less serious. We shall have, however, to develop finer categories for subsequent analyses. These methodological explanations having been stated, what are the trends that stand out?

Except for Asians, ethnic minorities have not made breakthroughs in Engineering and Physical Sciences. Tables 7 and 8 show a decrease in the representation of Blacks and Chicanos in category: others, from 1975 to 1980 (Blacks: 82-67%; Chicanos: 63-55%). They have experienced an increase in Law and a slight gain in Engineering (Blacks). Latinos show a slightly lower than average representation in Engineering, and a slightly higher one in Law over the same period. The other minority ethnic groups (American Indians, Filipinos, East Indians) are almost completely excluded from the disciplines which belong to the economically and culturally profitable market.

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* These are offered at UC San Francisco.

TABLE 7

PROPORTION OF GRADUATE STUDENTS BY ETHNIC IDENTITY AND FIELDS OF STUDIES, UNIVERSITY OF CALIFORNIA, BERKELEY (Fall 1975)

GRADUATE PROGRAMS	American Indian	Black / Afro-Amer.	Chicano / Mexican-Amer.	Asian*	East Indian Pakistani	Latino Other Spanish	Pilipino Filipino	White Caucasian	Others	Decline to State	Foreign Students	TOTAL
Engineering		(4)**	(6)	134	11	14	(2)	656	13	25	556	1421
				21%	38%	13%		10%	10%	7%	45%	15%
Business Administration		20	(8)	56	(3)	(5)	(1)	416	12	17	100	638
		5%		9%				7%	9%	5%	8%	7%
Physical Sciences	(1)	12	(5)	48	(3)	(5)	-	473	20	29	140	736
		3%		8%				8%	15%	9%	11%	8%
Law	(8)	69	61	45		12	(6)	618	18	50	30	917
		17%	28%	7%		11%		10%	13%	15%	2%	10%
Others	35	328	135	341	12	70	15	415	121	211	417	5801
	80%	82%	63%	55%	41%	66%	63%	66%	90%	64%	34%	61%
TOTAL	44	398	215	624	29	106	24	6314	134	332	1243	9513

Source: Adapted from Campus Statistics Fall Quarter 1975 and Year 1974-1975, University of California, Berkeley, Office of Institutional Research, Table 11, p. 30.

Notes : *Asian = Chinese / Chinese American, Japanese / Japanese American, Korean, Polynesian, Thai / Other Asian

**When figures are lower than ten, they are expressed in real numbers.

.The field of Health and Medical Sciences does not appear for 1975.

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TABLE 8

PROPORTION OF GRADUATE STUDENTS BY ETHNIC IDENTITY AND FIELDS OF STUDIES, UNIVERSITY OF CALIFORNIA, BERKELEY (Fall 1980)

COLLEGE OR SCHOOL	American Indian	Black / Afro-Amer.	Chicano / Mexican-Amer.	Asian*	East Indian Pakistani	Latino Other Spanish	Pilipino Filipino	White Caucasian	Others	Decline to State	Foreign Students	No Data	TOTAL
Engineering	(1)	(12)	(8)	138 23%	(9)	(16) 12%	(2)	636 10%	19 16%	13 9%	574 43%	11 12%	1439 16%
Business Administration	(2)**	(8)	(8)	36 6%	(2)	(3)	(2)	386 6%	5	(2)	86 6%	(7)	547 6%
Physical Sciences	(2)	(9)	(1)	37 6%	-	(7)	(1)	426 7%	14 11%	19 13%	174 13%	(7)	697 8%
Law	(7)	67 23%	58 35%	44 7%	-	19 14%	(5)	674 11%	7 6%	13 9%	21 2%	14 16%	929 10%
Health & Medical Sciences	-	(1)	(1)	(4)	-	-	-	62 1%	1 1%	(2)	-	-	71 1%
Others	41 77%	198 67%	92 55%	331 56%	15 58%	90 67%	19 66%	4091 65%	76 62%	97 66%	474 36%	49 56%	5573 60%
TOTAL	53	295	168	590	26	135	29	6275	122	146	1329	88	9256

Source: Adapted from Campus Statistics Fall Quarter 1980 and Year 1979-1980, University of California, Berkeley, Office of Institutional Research, Table 11, p. 27.

Notes : *Asian - Chinese / Chinese American, Japanese / Japanese American, Korean, Polynesian, Thai / Other Asian

**When figures are lower than ten, they are expressed in real numbers.

Asians, which are not considered a numerical minority at UC, Berkeley, as well as foreign students, are the great winners. They have a greater representation than the White and the other ethnic groups for both periods.

Data from the Student Affirmative Action Advisory Committee confirm this:

> "When we look at these data on a department-by-department basis, the success rate of minority applicants is lower than the success rate of White applicants in two-third of the graduate admissions programs on the Berkeley Campus."
>
> (SAAAC, 1981-82, p. 14-15)

> "For most departments there is a downward trend of new minority registrations."
>
> (SAAAC, 1981-82, p. 22)

The Committee notes a lower than expected rate of new registrations in Electrical Engineering and Computer Science, and also that the Jurisprudence Degree Program of the School of Law, which had the largest number of ethnic minority students has lost ground from 1977 to 1981:

> "The data for the year 1981, however, while promising and positive relative to other graduate departments on the campus, suggest that the commitment on the part of the School of Law to an affirmative admissions policy for minorities has weakened."
>
> (SAAAC, 1981-82, p. 16)

The Committee specifies that the percentage of new minority registration in Law School is lower in 1981 (25.2%) than in 1977 (29.5%) (SAAAC, 1981-82 Table 7, Table 8).

What about women at this point? The Student Affirmative Action Advisory Committee reveals more important gains for women:

> "... females are being admitted and registering at a higher rate than male applicants in a majority of graduate departments."
>
> (SAAAC, 198k-82, p. 20)

What about our typology?

The number of women in the disciplines with economically and culturally profitable markets rose over the 1975-1980 period. In 1980, however, their proportion is higher in Administration (Grad. 46% w) and Law (36% w), lower in Engineering (10% w), Computer Science and Mathematics (11% w), and other Physical Sciences (Table 11). Besides, except in Administration, their proportion decreases from the undergraduate level to the graduate level (Table 11).

Analysis of male and female, rates of enrollment in 1975 and 1980 (Tables 9, 10) shows that men underwent a greater decrease than women in disciplines grouped under the heading: others over the same period (M: 64% - 48%; W: 90% - 74%). Conversely, in 1980, still few women are enrolled in Engineering (3%) Computer Science and Mathematics (3%), compared to men (14%, 11%).

At the Université Laval, women have increased their number mainly at the graduate level from 1975 to 1980 (Table 14). This progression occurred chiefly in Business. There is however a decrease over the same period, at the graduate level, in Engineering (-12%), Mathematics and Computer Science (-25%). It should be said that there were already very few of them enrolled in those disciplines in 1975: 8 women in Engineering and 12 in Mathematics and Computer Sciences. There is also a regression in Law (-23%) over the same period.

Law and Medical Sciences are the fields where they are most strongly represented at the graduate level, in 1980 (Law: 31% w; Medical Sciences: 35% w).

Analysis of male and female rates of enrollment in 1975 and 1980 (Tables 12, 13) indicates a decrease from 1975 to 1980, in the number of men enrolled in the category: Others (66% - 56%). The women's rate of enrollment remained practically stable (80% - 79%). Less than 2% of women are enrolled in Engineering, Mathematics and Computer Science. It should be noted also that very few men are enrolled in the latter (3%).

To sum up, ethnic minorities did not make substantial gains from 1975 to 1980, at UC Berkeley, in disciplines leading to economically and culturally profitable markets. Their representation, just as that of women, is mostly found in the traditional culturally profitable market of Law and Health Sciences*. Furthermore, it appears that these gains are not necessarily irreversible.

What are the achievements? (Degrees conferred)

Appropriate answer to this question would require cohort analysis. However, available data show that the 1975 and 1980 graduates are not the same individuals as those observed on admission lists. Cohort analysis are all the more important since it is known that university retention is a serious problem for ethnic minorities, and that they usually take longer to obtain a similar diploma than the White majority. UC Berkeley however, seems to be an institution that retains ethnic minorities more efficiently:

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* At Berkeley, women increased their number in Business. This gain is, however, less profitable than in Engineering and Computer Science (California Post-secondary Education Commission, 1982, Table 3, p. 23).

PROPORTION OF STUDENTS BY DEPARTMENT, LEVEL OF STUDIES AND SEX, UNIVERSITY OF CALIFORNIA, BERKELEY
(Fall 1975)

	MEN		WOMEN	
DEPARTMENT	UNDERGRADUATES	GRADUATES	UNDERGRADUATES	GRADUATES
Engineering*	1071 9%	9385 11%	99.5 2%	44 2%
Computer Science & Mathematics**	945 8%	659.75 8%	122 2%	64.25 2%
Business Administration	513 4%	490.5 6%	207 3%	147.5 5%
Physical Sciences***	377 3%	410.25 5%	125 2%	39.75 1%
Law		613.83 7%		303 11%
Others	9219 76%	5558.17 64%	5718.5 87%	2642.5 90%
TOTAL	12125	8671	6575	2938

Source: Adapted from Campus Statistics Fall Quarter 1975 and Year 1974-1975, University of California, Berkeley, Office of Institutional Research, Table 6, p. 22-26.

Notes : *Engineering = Engineering (-) Electrical Engineering & Computer Science

**Computer Science = Electrical Engineering & Computer Science

***Physical Sciences = Physical Sciences (-) Mathematics

TABLE 10

PROPORTION OF STUDENTS BY DEPARTMENT, LEVEL OF STUDIES AND SEX, UNIVERSITY OF CALIFORNIA, BERKELEY (Fall 1980)

	MEN		WOMEN	
DEPARTMENT	UNDERGRADUATES	GRADUATES	UNDERGRADUATES	GRADUATES
Engineering*	1086 9%	860 14%	215 2%	91.5 3%
Computer Science & Mathematics**	887.84 7%	666.5 11%	192 2%	83.3 3%
Business Administration	337 3%	566.5 10%	217.5 2%	270 8%
Physical Sciences***	566.83 5%	382 6%	231 2%	53.5 2%
Law		594 10%		335.5 10%
Health & Medical Sciences		29 .5%		42 1%
Others	9262.33 76%	2838 48%	8631 91%	2444.2 74%
TOTAL	12140	5936	9487	3320

Source: Adapted from Campus Statistics Fall Quarter 1980 and Year 1979-1980, University of California, Berkeley, Office of Institutional Research, Table 6, p. 20-23.

Notes : *Engineering = Engineering (-) Electrical Engineering & Computer Science

**Computer Science = Electrical Engineering & Computer Science

***Physical Sciences = Physical Sciences (-) Mathematics

TABLE 11

PROPORTION OF WOMEN BY DEPARTMENT,
LEVEL OF STUDIES AND RATES OF INCREASE 1975-1980,
UNIVERSITY OF CALIFORNIA, BERKELEY

DEPARTMENT	WOMEN									
	UNDERGRADUATES					GRADUATES				
	80	% W	75	% W	Δ 75-80	80	% W	75	% W	Δ 75-80
Engineering*	215	17%	99.5	9%	116%	91.5	10%	44	4%	108%
Computer Science & Mathematics**	192	16%	122	11%	57%	83.3	11%	64.25	9%	30%
Administration	217.5	39%	207	29%	5%	270	46%	147.5	23%	83%
Physical Sciences***	231	29%	125	25%	85%	53.5	12%	39.75	9%	35%
Law						335.5	36%	303	33%	11%
Health & Medical Sciences						42	59%			
Others	8631	48%	5718.5	38%	51%	2444.2	46%	2642.5	32%	-7.5%
TOTAL	9487	44%	6575	35%	44%	3320	36%	2938	25%	13%

Source: Adapted from Campus Statistics Fall Quarter 1980 and Year 1979-1980, University of California, Berkeley, Office of Institutional Research, Table 6, p. 20-23.

Adapted from Campus Statistics Fall Quarter 1975 and Year 1974-1975, University of California, Berkeley, Office of Institutional Research, Table 6, p. 22-26.

Notes: *Engineering - Engineering (-) Electrical Engineering & Computer Science

**Computer Science - Electrical Engineering & Computer Science

***Physical Sciences - Physical Sciences (-) Mathematics

TABLE 12

PROPORTION OF STUDENTS BY DEPARTMENT, LEVEL OF STUDIES AND SEX, UNIVERSITÉ LAVAL, (Fall 1975)

	MEN		WOMEN	
DEPARTMENT	UNDERGRADUATES	GRADUATES	UNDERGRADUATES	GRADUATES
Engineering	1275 13%	140 6%	50 1%	8 1%
Computer Science & Mathematics	313 3%	63 3%	68 1%	12 2%
Business Administration	1219 13%	303 14%	212 3%	44 6%
Physical Sciences*	135 1%	85 4%	31 1%	4 1%
Law	233 2%	113 5%	222 3%	62 8%
Health & Medical Sciences	657 7%	52 2%	662 10%	34 5%
Others	5405 57%	1455 66%	5414 80%	635 79%
TOTAL	9498	2211	6749	799

Source: Adapted from Université Laval, Bureau du Registraire, Automne 1975.

Note : *Physical Sciences = Physical Sciences (-) Computer Sciences & Mathematics

TABLE 13

PROPORTION OF STUDENTS BY DEPARTMENT, LEVEL OF STUDIES AND SEX, UNIVERSITÉ LAVAL, (Fall 1980)

	MEN		WOMEN	
DEPARTMENT	UNDERGRADUATES	GRADUATES	UNDERGRADUATES	GRADUATES
Engineering	1971 18%	144 6%	189 2%	7 .5%
Computer Science & Mathematics	491 5%	60 2%	153 2%	9 1%
Business Administration	1424 13%	534 22%	753 8%	155 11%
Physical Sciences*	139 1%	122 5%	42 .4%	12 1%
Law	365 3%	109 5%	351 3%	48 3%
Health & Medical Sciences	616 6%	98 4%	897 9%	53 4%
Others	5670 53%	1343 56%	7645 76%	1142 80%
TOTAL	10676	2410	10030	1426

Source: Adapted from Université Laval, Bureau du Registraire, Automne 1980.

Note :*Physical Sciences = Physical Sciences (-) Computer Sciences & Mathematics

TABLE 14

PROPORTION OF WOMEN BY DEPARTMENT,
LEVEL OF STUDIES AND RATES, OF INCREASE 1975-1980,
UNIVERSITE LAVAL

DEPARTMENT	WOMEN									
	UNDERGRADUATES					GRADUATES				
	80	% W	75	% W	Δ 75-80	80	% W	75	% W	Δ 75-80
Engineering*	189	9%	50	4%	278%	7	5%	8	5%	-12%
Computer Science & Mathematics	153	24%	68	18%	125%	9	13%	12	16%	-25%
Business Administration	753	35%	212	15%	255%	155	22%	44	13%	252%
Physical Sciences*	42	23%	31	19%	35%	12	9%	4	4%	200%
Law	351	49%	222	49%	58%	48	31%	62	35%	-23%
Health & Medical Sciences	897	59%	662	50%	35%	53	35%	34	40%	56%
Medical Sciences	506	48%	410	40%	23%	53	35%	34	40%	56%
Others	7645	57%	5414	50%	41%	1142	46%	635	30%	80%
TOTAL	10030	48%	6749	42%	49%	1426	37%	799	27%	78%

Source: Adapted from Université Laval,
Bureau du Registraire,
Automne 1975

Adapted from Université Laval,
Bureau du Registraire,
Automne 1980

Note : *Physical Sciences = Physical Sciences (-) Computer Sciences & Mathematics

> "The Berkeley graduation rates for underrepresented minority students appear to be high by national standards, although data-especially comparable data-are hard to obtain."
>
> (Frank, 1981, p. V)

This would confirm other researches indicating a greater retention minorities in elitist institutions (Astin 1982).

For informative purposes only, we shall quote the California Post-secondary Education Commission's conclusion to the analysis of Degrees conferred by ethnicity at the University of California from 1975-76 to 1979-80:

> "Minority students are adequately represented among graduates of professional programs, in terms of their baccalaureate representation, but they are underrepresented among doctoral degree recipients as Table 1 indicated. The largest drop-off occurs among Chicano students, who received 2.9 percent of the doctoral degrees awarded by the University of California in 1979-80, compared to 6.9 percent of the bachelor's degrees awarded during the same year. But the annual number of doctorate degrees awarded to Black students during the past five years has declined 7.7 percentage points, with Blacks receiving only 2.5 percent of the doctorates awarded in 1979-80.
>
> Women receive approximately half of all baccalaureate degrees awarded by the University, but they receive only one-fourth of the doctorates and only one-third of the three major professional degrees. While their representation at the graduate and professional levels has been increasing during the past decade, there is still some distance to be traveled before parity is achieved.
>
> Minority women are the most underrepresented of all recipients of the doctorate. For example, in 1979-80, although 16 of the 36 doctorates awarded to Black students went to Black women, only 17 of the 83 awarded to Asian students went to Asian women, as did only 6 of the 41 awarded to Chicano students."
>
> (California Post-secondary Education Commission, 1982, p. 22)

The analysis of first professional degrees conferred by the University of California in 1980-81 shows some trends among men and women in the following cultural markets: women almost achieved parity in Pharmacy (48% w), and Veterinary Medicine (47% w); they achieved a little over one third in Law (36% w). The proportion decreases in Medicine (28% w), Dentistry (24% w) and Optometry (19% w) (California Post-secondary Education Commission, 1982 Information Digest, display DEG-13, p. 166).

For informative purposes, at the Université Laval in Québec, trends are similar in 1980, in Law (39% w degrees conferred), Dentistry (17% w) and Medicine (33% w). Women seems to be represented in greater proportion, however, in Pharmacy (58% w) (Bureau du Registraire, Université Laval, 1980)*.

CHANGES IN TASTE AND COLOUR WITHOUT CHEMICAL CHANGES

The indicators that we have used (i.e. type of universities, status and level of studies, disciplines) show that the access of women and ethnic minorities to higher education has not experienced chemical changes from 1975 to 1980. Moreover, the use of the traditional quantitative indicator, the number, does not allow us to confirm the achievement of parity by those groups.

Table 1 has reminded us that institutional barriers to higher education are activated much earlier than the university level. The present study has focused mainly on university

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* The Université Laval offers neither Veterinary Medicine nor Optometry programs.

registrations. This type of data is limited by numerous factors*, among others, they do not enable one to isolate the effects of previous or current institutional barriers.

Space limitations prevent us from presenting a second facet of our analysis concerning the admission procedures (applications, admissions, registrations)**, and on special admission policies (Educational Opportunity Program and Affirmative Action Program) for women and ethnic minorities. We would have seen in it a clearer illustration of the attitudes of higher educational institution. The analysis of admission EOP would allow a closer analysis of a socio-economical minority, a necessary step in the analysis of the accessibility to higher education.

Moreover, in order to be exhaustive, this type of study should have at its disposal cohort analyses, and should examine the whole of the admission procedures - from application to graduation and distribution on the labour market.

WITHOUT CHEMICAL CHANGES

We would like to indicate briefly some institutional factors which seem to us to restrict the access to higher education for women and minority ethnic groups.

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* These data are not always exhaustive (for all institutions and departments). Besides, these data having been collected generally for administrative purposes, they must be converted for research purpose (Cloutier, Chenard, Laforce, 1982). Data are hardly comparable between different States, and different countries. Finally, this type of data does not provide information on the student's social origin.

** In progress at the Université Laval, was presented in a paper (Cloutier, Chenard, Laforce, 1984).

We have noticed in recent years, the increase in requirements for admission to higher educational institutions (Lavin, Alba, Silberstein, 1981) and, especially, in "flagship" universities. Moreover, these new requirements solicit more thorough knowledge of Science and especially Mathematics. It is known however, that women and ethnic minorities (excluding Asians) are less likely to complete college-preparatory courses in order to become eligible for university admission.

We can observe also in the admission procedures, the importance attached to school performance (GPA) as well as admission examinations (SAT, ACT). Studies have demonstrated that, traditionally, ethnic minorities have a lower performance on these tests (Sindler 1978, p. 100-124; California Postsecondary Education Commission, 1977, p. 58-61). We also know that there exists a positive relation between the performance on these tests and the parent's income (College Entrance Examination Board, 1974).

Besides, it is known that very few students are enrolled by special admission. At the University of California, "The Regents have designated 6% of each freshman class to be filled by students whose work does n. meet the minimum standards for admission". (Discover the University of California, p. 41). That 6% is not filled only by students from ethnic minorities, especially from socio-economical minorities. At the University of California, in fall 1977, the ratio of enrollment by special action EOP was 3.83%; a decline from fall 1971 (6.88%), and fall 1972 (5.41%) - (California Postsecondary Education Commission, 1980, p. E-4).

The economic crisis of the recent years may have led, on the one hand, to a shift of middle class clientele from

"flagship" universities to less elitist universities and, on the other hand, to a shift of upper class clientele from private "flagship" universities to public "flagship" universities. The increase in the average income of parents from 1975 to 1982, at UC, Berkeley seems to confirm this trend. (Annual Survey of entering Berkeley freshmen, Office of Student Research, 1982). Besides, the economic situation may have led to a restriction in the number of potential admissions in public "flagship" universities*. As a consequence of the restriction of the number of potential admissions and of the increase of the clientele we might see other fights similar to that of Bakke, in California. Shall we witness shortly a lawsuit against an Engineering or a Computer Science program, as we have seen against Medicine, in 1976, in the Bakke case?

FOR CHEMICAL CHANGES

To be sure, there is no easy or simple solution, no single answer to this complex interplay of factors. Nevertheless, in order to observe a real "chemical change" in the higher education clientele and anticipate strategies of changes, it is essential that researches be pursued on the analysis of admission and retention policies of higher educational institutions.

Present results allow us to advance that changes should be effected at lower levels (outreach programs, etc.), and also at the level of higher educational institutions, particularly "flagship" universities. For example, several institutions

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* This seems to be the case at UC, Berkeley (see Table 4)

seem to have developed a "grade fetishism"* towards school performance. Conversely, more diverse admission criteria, particularly non-numeric and non-cognitive admission criteria should be added. Our research carried out at the Université Laval on the concept of life experience as an admission criterion showed that the weighted factors inside that concept are very close to traditional school and cognitive factors (Héon, 1985). The Bakke case (Sindler, 1978) and other reports (Student Affirmative Action Advisory Committee 1982, p. 5) have brought to the fore some promising alternatives developed in other institutions:

> "Personal assessments in the style of elite east coast private colleges and universities offer another alternative to the fixed and mechanistic application of grade point and SAT scores as the only basis for "regular" admission decisions (SAAAC 1982, p. 5)

Similarly to the school performance myth, we can observe a trend presently developing, which could be called the "mathematics or sciences fetishism". Debates should be held on these issues since a stringent selection of women and ethnic minorities follows the increase in sciences requirements.

Higher educational institutions, and especially "flagship" universities, should, in order to assure real "chemical changes" assume leadership in these debates and in new institutional practices. There is already, at UC, Berkeley a great number of services and especially, a great number of

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* Student Affirmative Action Advisory Committee, 1981, p. 4.

persons who believe in, and work for the promotion of women and ethnic minorities. There remains a difficulty however: these services and several of these officers do not have a permanent status. Moreover, their operating budget depends on annual re-submission. For example,

> "The Student Learning Center is funded primarily on Student Registration Fees, Statewide Affirmative Action Funds, and a Federal Special Services Grant." (SAAAC 1981, p. 6)

The main allocation for that service, as well as for the women's Center for example, comes from Student Registration Fees, requiring annual re-submission. Institutional status for these services is all the more pertinent in times of budgetary crisis, for they might be cancelled first.

Besides, professors should really get involved in the procedure of psychological and academic support. For this purpose and to avoid the overburdening of women and ethnic minority professors, and especially the high turnover of minority faculty, institutional participation should be made accountable, i.e. be included in the university reward structure. This also implies a greater representation of both in the university structure.

Finally, the various psychological and academic services should be maintained and developed, all the more so that some of them have already proved a high level of achievement with concerned groups.

Evaluation of the first three years of experience of the Mathematics / Sciences Workshop established by the Professional Development Program at UC Berkeley has revealed positive results, such as the following:

> "... in many of these courses, the average grade of Workshop students has equalled or surpassed that of their non-minority classmates.
>
> ... with two exceptions, every minority Workshop student who has enrolled in Math IA during the last three years has completed the course.
>
> ...a reduction in the rate of failure of minority students who enter the University with the poorest levels of preparation. ... We see that the improved performance of Workshop participants is accomplished despite the fact that, on entering the University their SAT mathematics scores were actually lower (on average) than those of the non-Workshop students."
>
> (Treisman, 1981, p. 6)

It seems important to us that these various cultural and academic services be maintained, especially for women. The increase in the number of women enrolled in higher education in recent years could result in covering up their difficulties of access. Researches have revealed though, that even with upper social origin, women do not attain equal results and satisfaction from their university curriculum (Anisef 1982). Moreover, we can see the coming of new integration difficulties when less selected groups of women reach "flagship" universities in greater number.

Finally, one last issue concerning the accessibility of women and ethnic minorities to higher education is the

possibility for these groups to preserve their cultural identity and reflect on it. In that sense, Women's studies, Chicano studies, and Black studies should be maintained, and the institution should guarantee that their status is equivalent to that of professional programs. Furthermore, higher educational institutions must faster cultural diversity and make sure that the whole of the university (students, faculty and staff) benefits from the cultural assets of sexual and ethnic minorities. Oakes College at UC Santa Cruz is a good example of this "New Student"'s contribution to the institution (Cowan, Saufley, Blake, 1980).

These proposed strategies of changes might seem very utopian to you, the more so as they are supported by a sociologist. If her academic socialization has succeeded, she should nevertheless be sceptical about the "chemical" changes, especially those that come from educational institutions. It would seem that academic acquisition of university culture does not explain everything. You are therefore, my guest to this utopian feast!

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